EPA/ROD/R05-99/522
1999

EPA Superfund
Record of Decision:

US NAVY AVIONICS CENTER
EPA ID: IN4170023499
OU 00
INDIANAPOLIS, IN
07/28/1999

Decision Document

for

AOC 8 - Former Vehicle Maintenance Facility, Building 4000

Naval Air Warfare Center

Indianapolis, Indiana

Southern Division
Naval Facilities Engineering Command

Contract Number N62467-94-D-0888

Contract Task Order 0012

July 1999

DECISION DOCUMENT
FOR
AOC 8 - FORMER VEHICLE MAINTENANCE FACILITY, BUILDING 4000

NAVAL AIR WARFARE CENTER
INDIANAPOLIS, INDIANA

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

Submitted to:
Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29406

Submitted by:
Tetra Tech NUS, Inc.
661 Andersen Drive
Foster Plaza 7
Pittsburgh, Pennsylvania 15220

CONTRACT NUMBER N62467-94-D-0888
CONTRACT TASK ORDER 0012

July 1999

PREPARED UNDER THE SUPERVISION OF:

MARK SLADIC, P.E.
TASK ORDER MANAGER
TETRA TECH NUS, INC.
PITTSBURGH, PENNSYLVANIA

APPROVED FOR SUBMITTAL BY:

DEBBIE WROBLEWSKI
PROGRAM MANAGER
TETRA TECH NUS, INC.
PITTSBURGH, PENNSYLVANIA

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FIGURES

NUMBER **PAGE NO.**

ACRONYMS

AOC	Area of Concern
ARAR	Applicable or Relevant and Appropriate Requirements
BCT	BRAC Clean-up Team
BRAC	Base Realignment and Closure
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CIP	Community Involvement Plan
CFR	Code of Federal Regulations
COPC	Chemicals of Potential Concern
DCE	Dichloroethene
IDEM	Indiana Department of Environmental Management
IR	Installation Restoration
mg/kg	milligram per kilogram
NAVFAC	Naval Facilities Engineering
NAWC	Naval Air Warfare Center Command
NCP	National Contingency Plan
OSHA	Occupational Safety and Health Administration
PCB	Polychlorinated Biphenyl
PCE	Tetrachloroethene
PRG	Preliminary Remediation Goal
RAB	Restoration Advisory Board
RBC	Risk Based Concentration
RI	Remedial Investigation
RCRA	Resource Conservation and Recovery Act
SOUTHDIV	Southern Division, Naval Facility Engineering Command
SSL	Soil Screening Level
TCA	1,1,1-Trichloroethane
TCE	Trichloroethene
USEPA	U.S. Environmental Protection Agency
USGS	United States Geological Survey
VOC	Volatile Organic Compound

1.0 DECLARATION OF THE DECISION DOCUMENT

1.1 SITE NAME AND LOCATION

AREA OF CONCERN EIGHT (AOC8)
FORMER VEHICLE MAINTENANCE FACILITY, BUILDING 4000
NAVAL AIR WARFARE CENTER (NAWC) INDIANAPOLIS
INDIANAPOLIS, INDIANA

1.2 STATEMENT OF BASIS AND PURPOSE

This Decision Document presents the selected remedial action for the former vehicle maintenance facility in Building 4000 (AOC8) NAWC Indianapolis, Indianapolis, Indiana, developed in accordance with CERCLA, as amended by SARA, to the extent practicable, the National Contingency Plan. This decision is based on the administrative record for this Site, at the Warren Library, Indianapolis, Indiana..

The State of Indiana and the U.S. EPA concur on the selected remedy.

1.3 ASSESSMENT OF THE SITE

This site presents no endangerment to public health, welfare, or the environment. No action is the selected remedy.

1.4 DESCRIPTION OF THE SELECTED REMEDY

AOC 8 encompasses contamination in the former vehicle maintenance facility in Building 4000. Based on current Site conditions it has been determined that future risk to human health and the environment would be within acceptable limits. Therefore, no further remedial action is planned.

1.5 STATUTORY DETERMINATION

Because there are no risks associated with this site, no further action needs to be taken.

1.6 DECLARATION

The selected remedy is protective of human health and the environment, complies with Federal and State requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost-effective. This remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practical for this site.

Carl Loop — 9/2/99

Carl Loop, US Navy, Southern Division (SOUTHNAVFACENGCOM)
BCT Member — Date

Concurrence:

Denise Boone — 9/8/99

Denise Boone, USEPA, Region V
BCT Member — Date

Sean Grady — 9/2/99

Sean Grady, Indiana Department of Environmental Management
BCT Member — Date

2.0 DECISION SUMMARY

2.1 SITE NAME, LOCATION, AND DESCRIPTION

NAWC Indianapolis is located in Marion County, east of downtown Indianapolis within a predominantly residential/ commercial area (See Figure 2-1). NAWC Indianapolis is bordered by East 21st Street to the north, Arlington Avenue to the west, East 16th Street to the south, and a small waterway, Windsor Branch, to the east. Most of the commercial establishments within the immediate vicinity of NAWC Indianapolis are located along East 21st Street or Arlington Avenue. Businesses in the area include gas stations, car washes, dry cleaners, and office buildings. The areas immediately beyond the businesses lining East 21st and Arlington Avenue are predominantly residential, as are the areas south and east of the NAWC.

In late 1995, the Department of Defense decided to place the NAWC Indianapolis on the base realignment and closure list. This initiated the conversion of the facility from a government-owned and operated facility to the private sector. The NAWC Indianapolis is currently under the direction of Raytheon, under lease from the City of Indianapolis, who, in turn, leases the property from the U.S. Government. Figure 2-2 shows a layout of NAWC Indianapolis and the location of AOC 8.

The ground surface at NAWC Indianapolis is generally flat, sloping slightly from the northern boundary toward the southeast. Surface water drainage at the facility mostly occurs as overland flow during heavy precipitation events. This overland flow is collected and routed through a storm sewer system to two discharge locations: (1) a nearby stream to the southeast of the facility via permitted spillways and an off-site storm sewer system; and (2) a water retention pond in the southwest portion of the site. The retention pond was constructed to facilitate surface water infiltration and to alleviate ponded water on the facility grounds.

The unconsolidated glacial overburden is approximately 150 feet thick at the facility and is comprised of three aquifers or aquifer zones, namely the shallow aquifer zone, middle aquifer and deep aquifer. Each of these varies in thickness, composition, and horizontal extent throughout the site area. The shallow aquifer may be unconfined or semi-confined in some areas where it is near to the ground surface or where it is not overlain by till or other low permeability materials. The shallow aquifer ranges in thickness from 0.5 to 25 feet; the middle aquifer ranges in thickness from 1 to 34 feet; and the deep aquifer ranges in thickness from 5 to 26 feet. The shallow and middle aquifers are only believed to be horizontally continuous on the eastern and southern portions of NAWC Indianapolis, whereas the deep aquifer is

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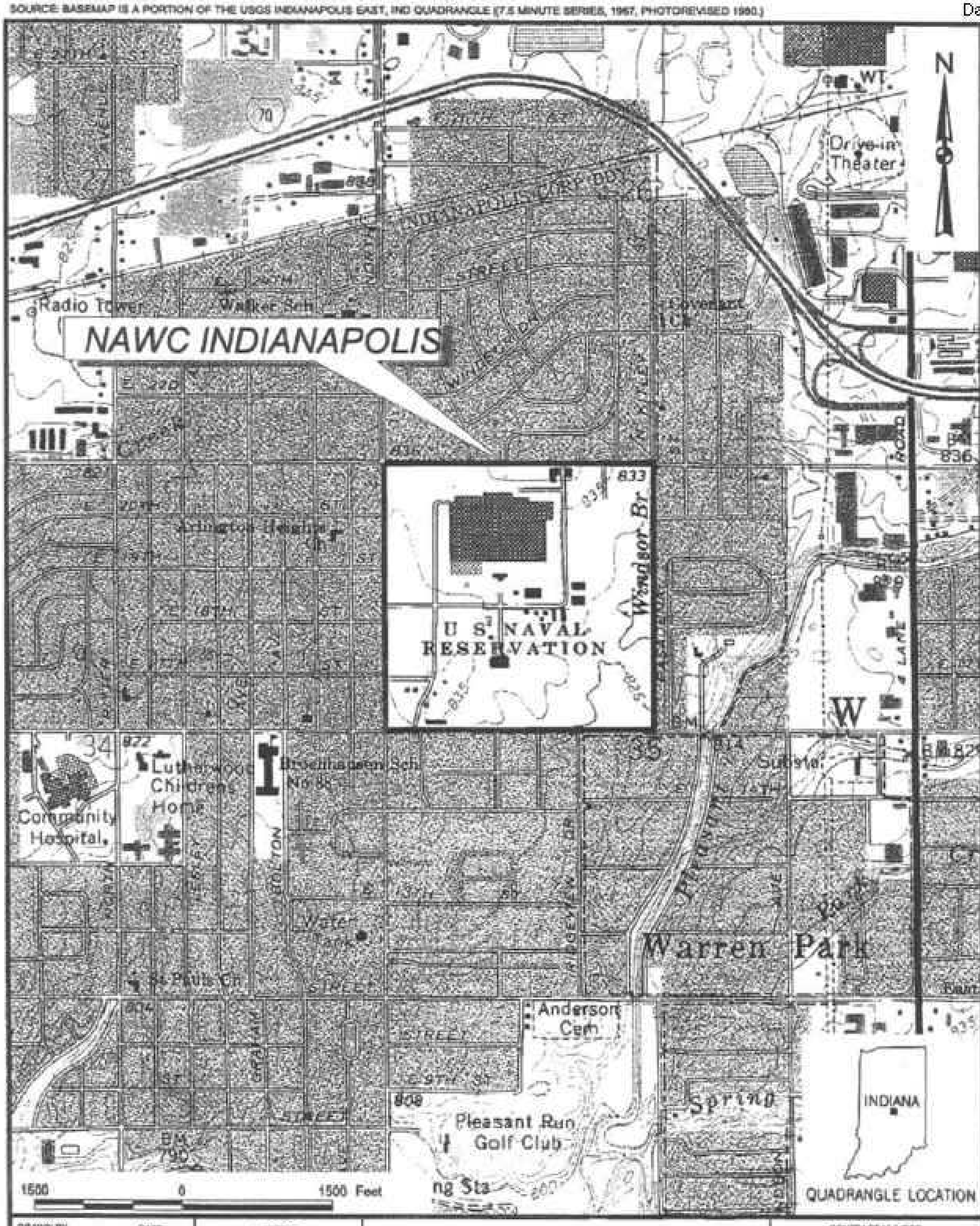
SOURCE: BASEMAP IS A PORTION OF THE USGS INDIANAPOLIS EAST, IND QUADRANGLE (7.5 MINUTE SERIES, 1967, PHOTOREVISED 1980.)



DRAWN BY D. PERRY	DATE 17-SEP-98		SITE LOCATION MAP	CONTRACT NUMBER
CHECKED BY	DATE		DECISION DOCUMENT	APPROVED BY [signature] DATE 7/1/99
COST/SCHEDULE-AREA			NAVAL AIR WARFARE CENTER INDIANAPOLIS	APPROVED BY DATE
SCALE AS NOTED			MARION COUNTY, INDIANA	DRAWING NO. FIGURE 2-1 REV 0

P:\GIS\7179\7179_PROPOSED_PLAN.APR 17-NOV-98 DMP LOCATION MAP LAYOUT

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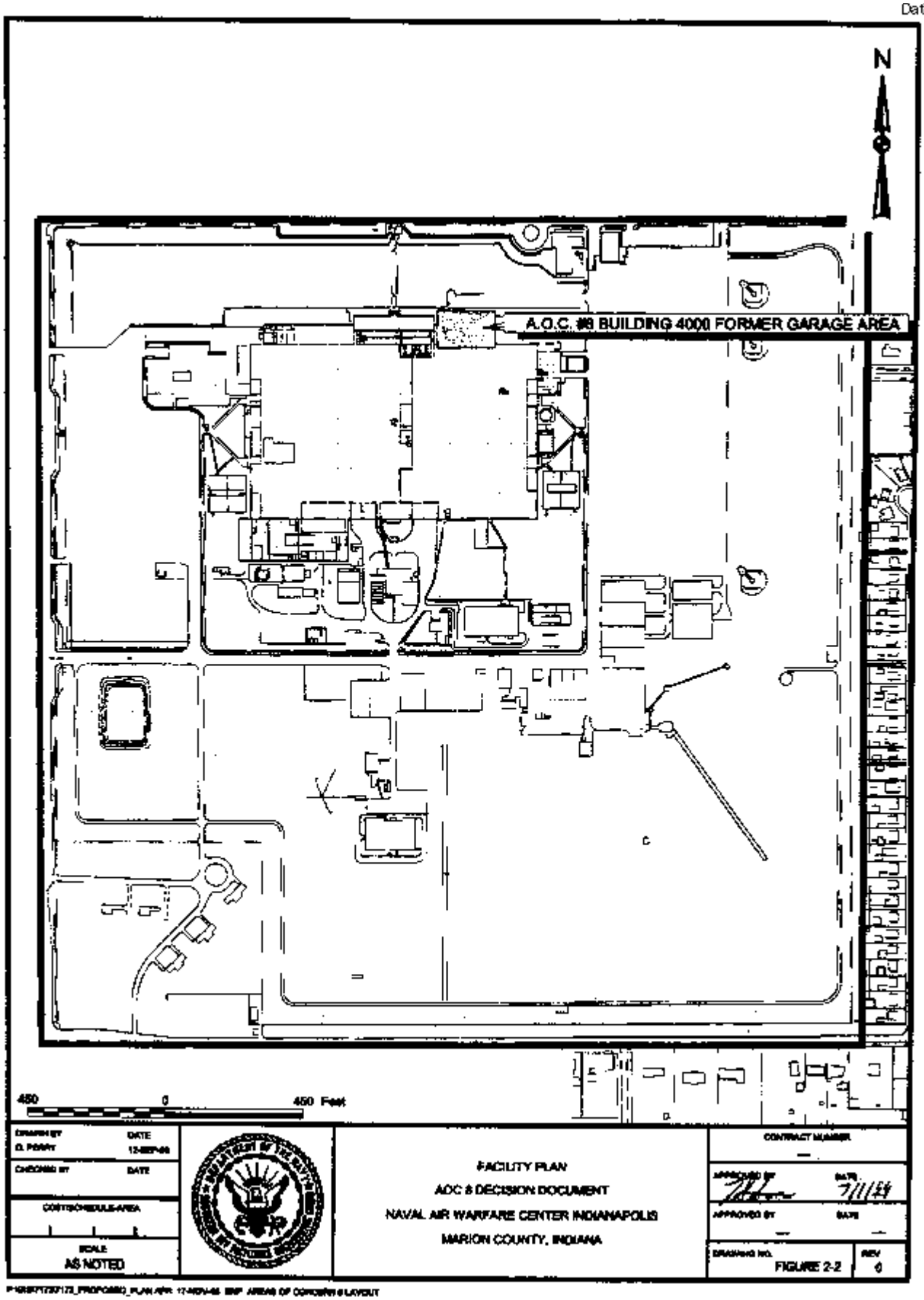
N
A.O.C. #8 BUILDING 4000 FORMER GARAGE AREA
450
0
450 Feet
AS NOTED
FACILITY PLAN
AOC 8 DECISION DOCUMENT
NAVAL AIR WARFARE CENTER INDIANAPOLIS
MARION COUNTY, INDIANA
FIGURE 2-2

expected to be horizontally continuous throughout the entire NAWC. Each of these aquifer zones are separated by low permeable glacial till aquitards. The aquitard between the shallow and middle aquifers ranges in thickness between 15 to 19 feet and the aquitard between the middle and deep aquifer ranges between 23 and 41 feet thick.

The groundwater flow direction across the facility in the shallow and middle aquifer zones is generally to the southeast and south, while flow in the deep aquifer is southwest. It is likely that groundwater in the shallow aquifer discharges into Windsor Branch and Pleasant Run to the east and southeast of the facility. The average horizontal hydraulic gradient for the shallow aquifer was 0.0071 ft/ft on December 10, 1996 and 0.0116 ft/ft on September 27, 1997. The average horizontal hydraulic gradient is 0.014 ft/ft in the middle aquifer, and 0.005 ft/ft in the deep aquifer. The average vertical gradient between monitoring wells screened in the shallow and middle aquifer is 0.5 ft/ft downward in the north-central and southern edges of the NAWC. Between the shallow and middle aquifers, the average vertical gradient in the northeastern corner of the NAWC is 0.13 ft/ft upward. This upward gradient indicates potential recharge of Windsor Branch immediately east of the NAWC from the shallow aquifer. The average hydraulic gradient between the middle and the deep aquifer is 1.3 ft/ft. For additional information on the geology and hydrogeology at the NAWC Indianapolis please refer to B&R Environmental (1997) and USGS (1997, 1998).

2.2 SITE HISTORY AND ENFORCEMENT ACTIVITIES

The Building 4000 served as a vehicle maintenance facility from approximately 1942 until 1990. Former operating practices are undocumented. Reportedly, petroleum-based waste products from garage operations were deposited in a storage tank at the power house until burned in the boilers. There are no indications that a drywell was ever present for disposal of petroleum based fluids or any other materials.

Preliminary data for the environmental condition of the area is available in Gasoline Tank No. 10 Site Assessment Report, April 1992, by Engineering Science. Soil gas, soils, and groundwater sampling was conducted. According to the report, it was suspected that the UST had leaked. Overexcavation of 48 cubic yards of soil was completed in December 1988. The report stated that based on inventory records, the tank leaked prior to March, 1986. (However, UST areas were evaluated separately and are not included in this investigation.)

The area is currently paved. The interior of the former garage building has been converted to office space. Outdoor parking areas are present to the east. Grassy vegetation is present to the north. Building 1000 is adjacent and contiguous to the south. Building 2000 is adjacent to the west.

Aerial photographs from 1951, 1956, 1958, 1962, 1966, 1971, and 1978 show that no outdoors activity was conducted at the building. No vehicles or materials are present outside the building.

The NAWC Indianapolis, under the office of the Chief of Naval Operations (CNO) initiated an Environmental Compliance Evaluation (ECE) program to identify environmental compliance deficiencies, provide recommendations for corrective action, and establish a basis for future budgets. The first ECE was performed in October 1991. The next ECE was performed in 1994, at which time a total of 21 environmental media/program areas were evaluated. The ECE's are maintained on site. Environmental programs and procedures were typically updated to meet ECE deficiencies.

In anticipation of the transfer from the government to the private sector, an Environmental Baseline Survey (EBS) was prepared by Brown & Root (B&R) Environmental (March 1996) to document the results of a modified Phase I environmental site assessment. The site assessment was performed in accordance with the U.S. Department of Defense (U.S. DOD) requirement for property intended to be sold, leased, transferred or acquired. The EBS reported findings on the status of the NAWC Indianapolis property and off-base property based on visual inspections and a review of records.

The Remedial Investigation began with the collection of Phase I environmental samples from October through December 1996. Additional samples were added in September 1997. A Phase I Remedial Investigation report was issued in December 1997 which presented the analytical results and evaluated the potential human health risks associated with the NAWC facility. Based on these findings, additional Phase II samples were collected at selected areas during the spring and summer of 1998.

2.3 HIGHLIGHTS OF COMMUNITY PARTICIPATION

A Community Involvement Plan (CIP)(May 1997) was developed for NAWC Indianapolis that identifies a program to establish communication and information exchange between the Navy, and various federal, state and local agencies, and community agencies; and the public. Specifically, this provides a mechanism for the exchange of information between the BRAC Cleanup Team (BCT) and the public,

primarily through the Restoration Advisory Board (RAB). The BCT and RAB periodically hold public meetings to provide full exchange of information and to provide an opportunity for public comment.

The Navy solicited input from the community for the proposed plan on the selected alternative for each response action. The Navy originally set a public comment period from September 28, 1998 to October 27, 1998, and later extended it until November 11, 1998 to encourage public participation in the selection process. The comment period included a public meeting at which the Navy, with the EPA and IDEM, presented the Proposed Plan, answered questions, and accepted both oral and written comments. The public meeting was held on October 14, 1998 from 7:00 PM to 9:00 PM, at the Quality Inn East at 3525 North Shadeland Avenue in Indianapolis.

As indicated by the pubic notices, all documents pertinent to AOC 8 were made accessible to the public at the information repository located at the Warren Branch Library, 9701 East 21st Street, Indianapolis, Indiana.

2.4 SCOPE AND ROLE OF ACTION

The sites that required environmental investigations as part of the Remedial Investigation at NAWC Indianapolis comprised eighteen areas of concern and one Installation Restoration (IR) site. This Decision Document addresses one AOC: AOC 8 – Former Vehicle Maintenance Facility, Building 4000. This AOC was determined in the RI to have no risk. This Decision Document identifies the AOC as a site requiring no further action. The AOC will be addressed independent of the other AOCs and the IR. The other AOCs will be addressed in other Decision Documents, and the basewide groundwater conditions will also be evaluated in a separate document.

2.5 SUMMARY OF SITE CHARACTERISTICS

2.5.1 Geology

The geology of AOC 8 is consistent with the geology found across the NAWC facility. The 12 borings drilled at AOCs 8 and 9, ranging in depth from 6 to 10 feet bgs, only partially penetrated through the unconsolidated surficial fill and glacial deposits. In both AOC 8 and 9, yellow brown silty clay was found from 1 foot bgs down to approximately 10 feet bgs. Borings drilled in AOC 8 encountered asphalt, concrete, road subase materials from the ground surface down to 1 foot.

2.5.2 Hydrogeology

No permanent monitoring wells were installed at AOC 8, thus hydraulic gradients, groundwater flow directions or velocity could not be determined at these sites. According to visual observations of the soil moisture content in subsurface soil samples, the water table was not encountered within any of the boreholes. Groundwater flow in the shallow aquifer is expected to mimic the basewide groundwater flow direction and the relatively flat surface topography and flow to the southeast. It is also believed that groundwater in the shallow aquifer will eventually discharge into Pleasant Run to the southeast.

2.5.3 Nature and Extent of Contamination

This section presents the results of the sampling and analysis of environmental samples collected at AOC 8 (the Former Vehicle Maintenance Facility, Building 4000). Field screening for VOCs was not conducted for AOC 8. All data generated were validated according to EPA National and Region V guidelines.

Surface and Subsurface Soil

Surface and subsurface soil samples were collected from six direct push soil borings (AOC8-DP01 – AOC8-DP06) advanced and submitted for analysis. Lead concentrations reported did not exceed those reported in the background dataset; the maximum concentrations of analytes detected in samples analyzed by CEIMIC, Inc., did not exceed the established benchmarks. Several PAHs were detected at location AOC8-DP02 (depth of 2-6 feet), however, the concentrations reported were less than the established benchmarks.

In summary, there is minimal evidence of environmental contamination at AOC 8. Although surface and subsurface soil samples were collected at 6 locations and analyzed for lead, VOCs, and semivolatile organic compounds, target analytes were detected infrequently and at concentrations which do not exceed the established benchmarks.

2.6 SUMMARY OF SITE RISKS

During the RI, an analysis was conducted to estimate the health or environmental problems that could result if the soil contamination at AOC 8 was not mitigated. This analysis is commonly referred to as a baseline risk assessment. In conducting this assessment, the focus was on health effects that could result from exposure to the soil and groundwater contaminants in both an industrial and a residential

setting. The industrial setting considered the exposure by on-site workers, construction workers and adolescent trespassers. Residential exposure considered on-site exposure to the soil by future use of the site as residential property. At AOC 8, twelve soil samples were collected from six borings at the AOC, and no groundwater samples were collected. In samples collected during the RI, contaminants were detected in the soils at the AOC.

The concentrations were compared to risk assessment criteria for residential and non-residential use. Criteria that were used to evaluate direct contact exposures were EPA Region III Risk Based Concentrations (RBCs), EPA Region IX Preliminary Remediation Goals (PRGs), IDEM Tier II Goals, and site-specific background concentrations. In addition, EPA Generic Soil Screening Levels (SSLs) and IDEM Tier II Goals were used to evaluate the potential for a chemical to migrate from the soil to the groundwater. If a chemical concentration in groundwater or soil was found to be greater than one of the criteria (or 10% of PRG or RBC in the case of non-carcinogens), then the chemical was designated as a Chemical Of Potential Concern (COPC) and was considered for further risk analysis. Concentrations of inorganics were also compared to site specific background concentrations.

Based on the laboratory analyses, none of the residential criteria were exceeded, and none of the non-residential criteria were exceeded. The most restrictive criteria that were used for determining the COPCs use a risk level of 1.0×10^{-6} in the calculation of the criteria. Thus, it was not necessary to calculate risk levels since the risk of exposure for any non-residential receptor is less than the EPA criteria of 1.0×10^{-6}.

The available data suggested that the chemicals detected in the soil were not migrating off-site, therefore, risks based on off-site residential use of the groundwater were not evaluated. There are no on-site wells and the area is serviced by a public water supplier so risks by on-site consumers (present or future) were not evaluated.

A baseline ecological risk assessment was also performed. The ecological risk assessment compared soil sample analytical results to Ecological Screening Levels. Ecological Screening Levels are based on EPA Region III Biological Technical Advisory Group (BTAG) values and “B level” criteria developed by The Netherlands and the Province of Quebec. If a chemical concentration in soil was found to be greater than one of the criteria, then the chemical was designated as a COPC and was considered for further risk analysis. COPCs were then used to evaluate the risk to wildlife receptors by calculating hazard quotients using a simple food chain model developed by the EPA Emergency Response Team. Finally, site specific factors were examined to evaluate the likelihood that a COPC may actually pose a risk. Such factors

include the COPC concentration relative to the background, frequency and magnitude of detections, relationship of average COPC concentration to screening level, area affected, probable bioavailability, and degree in which wildlife are expected to use the area. In addition to contaminants in the surface soil, contaminants in the groundwater were modeled to predict their concentrations in Pleasant Run. The predicted concentrations were compared to surface water criteria. Contaminants with concentrations above the surface water criteria were retained as COPCs. Following the evaluation of the above information, COPCs that were judged likely to pose a potential risk under the site conditions were identified as chemicals of concern for further evaluation.

Based on the results of the surface soil analyses, only bis(2-ethylhexyl)phthalate was identified as a COPC. This compound was identified only because it lacked a screening level. The concentrations were less than the background level. Thus, the COPC was not considered to be a chemical of concern, and no further ecological evaluation was made.

Since this there are no risks to human health or the environment, no further action is necessary at this site.

The summary of the analytical results and risk assessment tables from the RI report are included in Appendix A. A figure depicting the sample locations is also provided in Appendix A.

2.7 DESCRIPTION OF ALTERNATIVES

Because there are no risks associated with this site, no further action needs to be taken. Thus, no additional alternatives need to be considered. The preferred alternative is a “No Action” alternative.

2.8 SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

The preferred alternative for AOC 8 is No Action. Based on current information, this alternative conforms with the nine criteria that EPA uses to evaluate alternatives. This section profiles the performance of the preferred alternative against the nine criteria. The nine criteria are summarized below.

Overall Protection of Human Health and Environment addresses whether or not a remedy provides adequate protection and describes how risks posed through each pathway are eliminated, reduced or controlled through treatment, engineering controls or institutional controls.

Compliance with ARARs addresses whether or not a remedy will meet all of the Applicable or Relevant and Appropriate Requirements of other Federal and State environmental statutes and/or provide grounds for invoking a waiver.

Long-term effectiveness and performance refers to the magnitude of residual risk and the ability of a remedy to maintain reliable protection of human health and the environment over time once cleanup goals have been met.

Reduction of toxicity, mobility, or volume through treatment is the anticipated performance of the treatment technologies that may be employed in a remedy.

Short-term effectiveness refers to the speed which the remedy achieves protection, as well as the remedy's potential to create adverse impacts on human health and the environment that may result during the construction and implementation period.

Implementability is the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement the chosen solution.

Cost includes capital and operations and maintenance costs.

State Acceptance indicates whether, based on its review of the RI and Proposed Plan, the State concurs with, opposes, or has no comment on the preferred alternative.

Community Acceptance indicates whether interested persons in the community support, have reservations about, or oppose the preferred alternative.

2.8.1 Analysis

Overall Protection of Human Health and Environment. Since there are no risks associated with the AOC, the alternative is protective of human health and the environment.

Compliance with ARARs. The preferred alternative is in compliance with Federal and State ARARs.

Long-term effectiveness. Since there are no risks associated with the AOC, the alternative is effective over the long term.

Reduction of toxicity, mobility, or volume through treatment. This criteria is not applicable because there are no contaminants to be removed.

Short-term effectiveness. Since there are no risks associated with the AOC, the alternative is effective in the short term.

Implementability. This criteria is not applicable because there is no action to implement.

Cost. The preferred alternative has no capital cost and no annual operations and maintenance costs.

State Acceptance. The preferred alternative is in compliance with State ARARs. The State has viewed the preferred alternative favorably.

Community Acceptance. Community acceptance is described in Section 3.0 Responsiveness Summary.

2.8.2 SUMMARY OF PREFERRED ALTERNATIVE

In summary, no action is required at the AOC because there are no risks. The alternative is protective of human health and the environment.

2.9 STATUTORY DETERMINATIONS

The selected remedy is protective of human health and the environment, complies with Federal and State requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost-effective. This remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practical for this site. However, because treatment of the principal threats of the site was not found to be practical, this remedy does not satisfy the statutory preference for treatment as a principal element of the remedy. The size, location, and amount of contamination found at AOC 8 precludes a remedy in which contaminants would be treated effectively.

Because this remedy will result in contamination remaining on-site, the Navy will conduct a review every five years after the commencement of remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment.

3.0 RESPONSIVENESS SUMMARY

A Proposed Plan for AOC 8 was issued in September 1998. Subsequent to this, the Navy solicited input from the community on the selected alternative. The Navy set a public comment period from September 28,1998 to October 27,1998, which was later extended to November 11,1998, to encourage public participation in the selection process. The comment period included a public meeting at which the Navy, with the EPA and IDEM, presented the Proposed Plan, answered questions, and accepted both oral and written comments. The public meeting was held on October 14,1998 from 7:00 PM to 9:00 PM at the Quality Inn East at 3525 North Shadeland Avenue in Indianapolis. As indicated by the public notice for the meeting, all documents pertinent to AOC 8 were made available to the public at the information repository located at the Western Branch Library, 9701 East 21st Street, Indianapolis, Indiana.

3.1 COMMUNITY PREFERENCES

Comments were received from one person. The comments concurred with the deed restrictions to limit the land use to industrial, and expressed concern for the land use to be changed to residential or permit day care facilities without extensive investigation. The comments were general and did not specify an AOC.

3.2 INTEGRATION OF COMMENTS

As these comments only concurred with the selected remedies identified, no integration of these comments were warranted.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We make Indiana a cleaner, healthier place to live

Frank O'Bannon
Governor

John M. Hamilton
Commissioner

100 North Senate Avenue
P.O. Box 6015
Indianapolis, Indiana 46206-6015
(317) 232-8603
(800) 451-6027
www.ai.org/idem

November 17, 1998

Mr. Carl Loop
SOUTHDIV NAVFACENGCOM
2155 Eagle Drive
North Charleston, SC 29419-9010

Dear Mr. Loop:

Re: IDEM staff comments regarding the Proposed Plans (PPs) for AOCs 1, 5, 6, 7, 8, 9, 15, 17, and 18

Staff of the Indiana Department of Environmental Management have reviewed the above referenced documents. Our review generated the following comments:

GENERAL COMMENTS:

Section 7.0 - Community Participation:
In paragraph 2, the third sentence should read: "The Proposed Plan meets the applicable or relevant and appropriate federal and state requirements." In addition, this section should explain how public comments will be addressed. Please verify if a copy of the administrative record is available at the Warren Branch Library. If this is not the case, delete the statement in the last paragraph of this section.

SPECIFIC COMMENTS:

AOC 5:

Section 2.2 - Site History:
The entire sanitary sewer line will be transferred. However, the sewer lines, and the land around the sewer lines (easement), is transferable if the sewer line is within the transfer parcel 1. Clarification in the text is needed.

Figure 2-2:
The hatched areas on the map represent the transferable soils around some parts of the sewer system. However, the legend on the figure does not reflect that. A statement explaining that fact is needed in the text of the PP.

AOC 7:

Section 2.2 - Site History:
The entire sanitary sewer line will be transferred. However, the sewer lines, and the land around the sewer lines (easement) is transferable if the sewer line is within the transfer parcel 1. Clarification in the text is needed.

Figure 2-2:
The hatched areas on the map represent the transferable soils around some parts of the sewer system. However, the legend on the figure does not reflect that. A statement explaining that fact is needed in the text of the PP.

CONCLUSION:

It is IDEM staff's understanding that Institutional Control Plans (ICPs) will be attached to the Proposed Plans/Decision Documents. Once these ICPs are approved by IDEM and the U.S. EPA, IDEM staff will issue concurrence with the subject PPs. If you have any questions regarding the above comments, please contact me at (317) 308-3133.

Sincerely,

Gabriele Hauer, Project Manager
Defense Environmental Restoration Prograrn
Office of Environmental Response

GHH:mg
cc: Rex Osborn, DERP, IDEM
Denise Boone, U.S. EPA Region V
Mark Sladic, Tetra Tech NUS
Joe Logan, Tetra Tech NUS
Alan Shoultz, Navy-Southdiv.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF

SRF-5J

December 1, 1998

Carl Loop
Department of the Navy
SOUTHDIV NAVFACENGCOM
Code 18E2BM
2155 Eagle Drive
Post Office Box 190010
North Charleston, SC 29419-9010

RE: Proposed Plans for Areas of Concern 1, 5, 6, 7, 8, 9, 15, 17 and 18 for the Naval Air Warfare Center, Indianapolis, Indiana.

Dear Mr. Loop:

The United States Environmental Protection Agency (USEPA) has re viewed the Proposed Plans for Areas of Concern (AOCs) 1, 5, 6, 7, 8, 9, 15, 17 and 18 for the Naval Air Warfare Center (NAWC), Indianapolis, Indiana. The preferred alternatives that the Navy has chosen for each of the AOCs are acceptable. However, the Navy must realize that there are costs associated with institutional controls (ICs) that are deed restrictions. The Navy must include an estimate of the costs for ICs.

The USEPA will not concur until the following are complete: the community acceptance of the preferred alternative, the Institutional Control Plan(s), and the finalized decision documents.

If the Navy as the lead agency reevaluates their preferred alternative for the AOCs, changes a component of the preferred remedy, or chooses to implement a remedy other than the preferred alternative, any such changes must be made in accordance with CERCLA Section 117(b).

If you have any questions concerning this letter, please feel free to contact me at (312) 886-6217.

Sincerely,

Denise Boone

Denise Boone
Remedial Project Manager

cc: Gabriele Hauer, IDEM

TETRA TECH NUS, INC.
661 Andersen Drive ▪ Pittsburgh, Pennsylvania 15220-2745
(412) 921-7090 ▪ FAX (412) 921-4040 ▪ www.tetratech.com

PITT 03-9-043

March 5, 1999

Project Number 7173

Department of the Navy
SOUTHNAVFACENGCOM
ATTN: Carl Loop (Code 1871)
2155 Eagle Drive
North Charleston, South Carolina 29406

Reference: CLEAN Contract Number N62467-94-D-0888
Contract Task Order 0012

Subject: Decision Documents for AOC 1
Naval Air Warfare Center Indianapolis

Dear Mr. Loop:

In accordance with your request, please find enclosed three copies of the finalized Decision Document for AOC 1. The second part of the AOC 1 Decision Document submittal is the Institutional Control Manual and ICP for AOC 1. We believe the ICM is compliant with the most recent information provided by U.S. EPA. Upon regulatory concurrence, it is the Navy's intent to proceed as quickly as possible to complete the Decision Documents for the other AOCs in Parcel 1. These include AOCs 5, 6, 7, 8, 9, 15, 17, and 18.

Additionally, please see responses to IDEM comments. EPA said in a December 1, 1998 letter that they would not provide comments prior to community acceptance, completion of an ICP and finalized DD. The Navy feels these conditions have now all been met.

If you have any questions, feel free to call me at (412) 921-8216.

Sincerely,

Mark Sladic, P.E.
Task Order Manager

MS/gp

Enclosures

cc: Gabriele Hauer, IDEM
Denise Boone, USEPA
Alan Shoultz (w/o enclosures)
File 7173

IDEM COMMENTS REGARDING PROPOSED PLANS (PPs) FOR AOCs 1,5,6,7,8, 9, 15, 17, and 18

GENERAL COMMENTS:

1. **COMMENT:** **Section 7.0 – Community Participation**: In paragraph 2, the third sentence should read: "The Proposed Plan meets the applicable or relevant and appropriate federal and state requirements." In addition, this section should explain how public comments will be addressed. Please verify if a copy of the administrative record is available at the Warren Branch Library. If this is not the case, delete the statement in the last paragraph of this section.

   RESPONSE

a. The Navy agrees. This sentence in question some how got truncated and was missed. This will be corrected in the Decision Document.

b. A paragraph stating how the public comments will be addressed is located at the top of page 7-2. This is compliant with the EPA ROD guidance. No changes to the text are necessary.

c. A copy of the Administrative Record is located in the Warren Branch Library.

SPECIFIC COMMENTS:

AOC5:

1. **COMMENT:** **Section 2.2 – Site History:** The entire sanitary sewer line will be transferred. However, the sewer lines, and the land around the sewer lines (easement), is transferable if the sewer line is within the transfer parcel 1. Clarification in the text is needed.

   RESPONSE: The Navy agrees. This paragraph will be re-written to clarify this issue in the Decision Document.

2. **COMMENT Figure 2.2.** The hatched areas on the map represent the transferable soils around some parts of the sewer system. However, the legend on the figure does not reflect that. A statement explaining that fact is needed in the text of the PP.

   RESPONSE: The Navy agrees. A statement will be added to the text to explain the hatched areas on Figure 2-2. This change will be reflected in the Decision Document.

AOC 7:

1. **COMMENT:** **Section 2.2 – Site History:** The entire sanitary sewer line will be transferred. However, the sewer lines and the land around the sewer lines (easement) is transferable if the sewer line is within the transfer parcel 1. Clarification in the text is needed.

   RESPONSE: The Navy Agrees. This paragraph will be re-written to clarify this issue in the Decision Document.

2. **COMMENT:** **Figure 2-2:** The hatched areas on the map represent the transferable soils around some parts of the sewer system. However, the legend on the figure does not reflect that. A statement explaining that fact is needed in the text of the PP.

   RESPONSE: The Navy agrees. A statement will be added to the text to explain the hatched areas on Figure 2-2. This change will be reflected in the Decision Document.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF

SRF-5J

July 26, 1999

Carl Loop
Department of the Navy
SOUTHDIV NAVFACENGCOM
Code 18E2BM
2155 Eagle Drive
Post Office Box 190010
North Charleston, SC 29419-9010

RE: Decision Documents for Areas of Concern #5, 7, 9, 15, 17, and 18 for the Naval Air Warfare Center, Indianapolis, Indiana.

Dear Mr. Loop:

The United States Environmental Protection Agency (USEPA) has reviewed the Decision Documents (DDs) for Areas of Concern (AOCs):

5 - Transferable Portion of North-South Sanitary Sewer
7 - Transferable Portion of East-West Storm Sewer
9 - Northwest Corner of Building 3000
#15 - Building 1100
#17 - Transferable Portion of Sentry Drive
#18 - Northeast Land Scar Area

The DDs were received on July 7, 1999. The remedies that the Navy has selected are acceptable, however, the Navy has not provided the AOC-specific Institutional Control Plan (ICPs) as requested. In the USEPA's response to the proposed plans (dated December 1, 1998), it clearly stated that the USEPA could not concur until the following were completed: the community acceptance of the preferred alternative, the Institutional Control Plan(s), and the finalized decision documents. Two of the requirements have been satisfied.

Institutional controls must be clearly identified and defined, and their purpose and method of implementation should be clearly set forth in the decision document by way of the ICP as stated in the proposed plans. It is important to note that generally referring to or identifying an institutional control in a DD is not in itself an institutional control, because an institutional control must be implemented in order to achieve its objective, just as an engineering remedy described in a DD is

then designed and constructed. Additionally, the ICP must be included in the administrative record. The ICP Manual is not a substitute for the ICP, because the manual is only for the future property owner. The manual was developed so that the future property owner could have the ICPs in their possession without having to request access to the administrative record. The BRAC Closure Team agreed that all of abovementioned DDs were to follow the same format as the DD for AOC #1- Former Plating Area, Building 1000.

In Section 3.0 - Responsiveness Summary, please include a copy of the USEPA's and the Indiana Department of Environmental Management's (IDEM) comments on the proposed plan/DD and the Navy's responses to the comments in the next revision.

Please note that this is not a concurrence. The above deficiencies must be addressed before we can give a concurrence.

If you have any questions concerning this letter, please feel free to contact me at (312) 886-6217.

Sincerely,

Denise Boone
Remedial Project Manager

cc: Sean Grady, IDEM
Alan Shoultz, SOUTHDIV
Mark Sladic, TtNUS

TETRA TECH NUS, INC.
661 Andersen Drive ▪ Pittsburgh, Pennsylvania 15220-2745
(412) 921-7090 ▪ FAX (412) 921-4040 ▪ www.tetratech.com

PITT 07-9-201

July 27, 1999

Project Number 7173

Department of the Navy
SOUTHNAVFACENGCOM
ATTN: Carl Loop (Code 1871)
2155 Eagle Drive
North Charleston, South Carolina 29406

Reference: CLEAN Contract Number N62467-94-D-0888
Contract Task Order 0012

Subject: Decision Documents for Parcel 1
Naval Air Warfare Center Indianapolis

Dear Mr. Loop:

Please find enclosed three copies of change pages for the Parcel 1 AOCs.

1. **Instructions for the material attached to this letter:** At the recent BCT meeting, Sean pointed out that the Parcel 1 Decision Documents (DD) submitted on July 2 are lacking the site specific Institutional Control Plans. These DDs were to be revised in the same format as the signed AOC 1 DD. The AOC 1 DD has three appendices. The first is the local groundwater flow map. This map is not relevant for the other Parcel 1 DDs, and so is correctly excluded (since there is no groundwater remedy associated with these other AOCs). The second appendix for AOC 1 is the site-specific analytical summary, from the remedial investigation. The third appendix for AOC 1 is the site-specific Institutional Control Plan (ICP). It is this third appendix that has been inadvertently excluded. (However, the ICPs have been available in the Institutional Contol Manual for Parcel 1 which accompanied the Parcel 1 DD volume).

   Therefore, we are sending to the same distribution, which received the original DDs, a revised table of contents (TOC) identifying the appendix, plus the content of the missing appendix (the ICP). Please replace the TOC in each DD, and add the appendix contents to the end of each DD.

2. **Navy plan for packaging the appropriate DDs to support the initial parcel transfer:** Note that the parcel delineated for initial transfer is being identified as Parcel 1A, and contains only a subset of the AOCs included in the Parcel 1 documents. Upon regulatory concurrence and signature of the DDs included in the book titled '*Parcel 1 Decision Documents',* the DDs for the following AOCs will be copied from that book and collected in a separate volume titled *'Parcel 1A Decision Documents'*. These include:

   - AOC 5 – transferable portion of north-south sanitary sewer
   - AOC 7 – transferable portion of east-west storm sewer
   - AOC 17 – transferable portion of sentry drive
   - AOC 18 – northeast land scar area

At the same time, the Institutional Control Manual for Parcel 1A will be prepared, using just the individual ICPs for the four AOCs identified above. These ICPs have already been submitted for regulatory review in the July 2 submittal of the *'Parcel 1 Institutional Control Manual.'*

If you have any questions, feel free to call me at (412) 921-8216.

Sincerely,

Mark Sladic, P.E.
Task Order Manager

MS/kf

Enclosures

cc: Sean Grady, IDEM (w/enclosure)
Gary Schafer, USEPA (w/enclosure)
Alan Shoultz (w/o enclosures)
Mark Perry, TtNUS (w/enclosure)
Debra Wroblewski/DER, TtNUS (w/o enclosures)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF

SRF-5J

July 28, 1999

Carl Loop
Department of the Navy
SOUTHDIV NAVFACENGCOM
Code 18E2BM
2155 Eagle Drive
Post Office Box 190010
North Charleston, SC 29419-9010

RE: Decision Documents for Areas of Concern #5, 7, 9, 15, 17, and 18 for the Naval Air Warfare Center, Indianapolis, Indiana.

Dear Mr. Loop:

The United States Environmental Protection Agency (USEPA) has reviewed the Decision Documents (DDs) for Areas of Concern (AOCs):

5 - Transferable Portion of North-South Sanitary Sewer
7 - Transferable Portion of East-West Storm Sewer
9 - Northwest Corner of Building 3000
#15 - Building 1100
#17 -Transferable Portion of Sentry Drive
#18 - Northeast Land Scar Area

The revised pages were received on July 28, 1999. The USEPA concurs with remedies that the Navy has selected. However, in Section 3.0 - Responsiveness Summary, please include a copy of the USEPA's and the Indiana Department of Environmental Management's (IDEM) comments on the proposed plan/DD and the Navy's responses to the comments.

If you have any questions concerning this letter, please feel free to contact me at (312) 886-6217.

Sincerely,

Denise Boone
Remedial Project Manager

cc: Sean Grady, IDEM
Alan Shoultz, SOUTHDIV
Mark Sladic, TtNUS

TETRA TECH NUS, INC.
661 Andersen Drive ▪ Pittsburgh, Pennsylvania 15220-2745
(412) 921-7090 ▪ FAX (412) 921-4040 ▪ www.tetratech.com

PITT 08-9-050

August 6, 1999

Project Number 7173

Department of the Navy
SOUTHNAVFACENGCOM
ATTN: Carl Loop (Code 1871)
2155 Eagle Drive
North Charleston, South Carolina 29406

Reference: CLEAN Contract Number N62467-94-D-0888
Contract Task Order 0012

Subject: Decision Documents for Parcel 1
Naval Air Warfare Center Indianapolis

Dear Mr. Loop:

Please find enclosed three copies of change pages for the Parcel 1 AOCs.

1. **Instructions for the material attached to this letter:** Pursuant to their letter dated July 28, regarding the Decision Documents for this site, the EPA has requested that a copy of the USEPA's and the Indiana Department of Environmental Management's (IDEM) comments on the proposed plan/DD and the Navy's responses to the comments be included with these documents. Therefore, please replace the following pages:

   - The updated table of contents (identifying Section 3.3 Comment Resolution), and,
   - Page 3-1

   Following Page 3-1, please insert the pages following the title page 'USEPA and IDEM Comments and Resolutions.' Note that the content of each group is identical, however the contents page and page 3-1 contain a header in the upper right corner which indicate which section the change pages should be inserted in.

   As the remedy for AOC 6 and AOC 8 are 'no further action', these AOCs do not have change pages. This is consistent with EPA's July 28 letter.

2. **Schedule:** The Navy believes that the absence of these comment letters has not presented a material hurdle to completion of the regulatory review for these documents. The team schedule specified that following a 30-day regulatory review period, the date of concurrence on the Decision Documents was to be August 5. The Navy would appreciate if the EPA can now remove the signature pages from one set of the Decision Documents and sign these in the appropriate locations. Afterwards, please forward

these to the IDEM for signature. Following IDEM signature, the Navy requests that IDEM please forward them to Southdiv, attention Carl Loop, for final signature. When Southdiv returns the signed pages to us, we will provide copies for inclusion in all outstanding sets of Decision Documents.

If you have any questions, feel free to call me at (412) 921-8216.

Sincerely,

Mark Sladic, P.E.
Task Order Manager

MS/kf

Enclosures

cc: Sean Grady, IDEW(w/enclosure)
Gary Schafer, USEPA (w/enclosure)
Alan Shoultz (w/o enclosures)
Mark Perry, TtNUS (w/enclosure)
Debra Wroblewski/DER, TtNUS (w/o enclosures)

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We make Indiana a cleaner, healthier place to live

Frank O'Bannon
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100 North Senate Avenue
P.O. Box 6015
Indianapolis, Indiana 46206-6015
(317) 232-8603
(800) 451-6027
www.state.in.us/idem

August 17, 1999

Mr. Carl Loop
Department of the Navy
SOUTHDIV NAVFACENGCOM
Code 18E2BM
2155 Eagle Drive
Post Office Box 190010
North Charleston, SC 29419-9010

Dear Mr. Loop:

Re: Decision Document for Areas of Concern #5, 6, 7, 8, 9, 15, 17, and 18 for the Naval Air Warfare Center, Indianapolis, Indiana

Staff of the Indiana Department of Environmental Management (IDEM) have reviewed the above referenced document and has determined that it is acceptable providing the Navy address the following comments:

GENERAL COMMENT

An executive summary should be incorporated to give the readers an understanding of what this document is and why it was developed. Also, the title of this report should be changed to more accurately reflect the parcel name.

SPECIFIC COMMENTS

AOC 6, Page 2-13, Section 2.9: Some language in this section is not needed. Since there was no contamination, no risk, and no action is required for this AOC, the second sentence in the first paragraph continuing through the end of the page should be removed. Revision of this section may be needed.

AOC 8, Page 2-13, Section 2.9: Again, some language in this section is not needed. Since there was no contamination, no risk, and no action is required for this AOC, the third sentence in the first paragraph continuing through the end of the page should be removed. Revision of this section may be needed.

If you have any questions concerning this letter, please feel free to contact me at (317) 308-3121.

Sincerely,

Sean K. Grady, Project Manager
Federal Programs Section
Office of Environmental Response

SKG:mg
cc: Alan Shoultz, SOUTHDIV
Mark Sladic, Tetra Tech NUS
Denise Boone, U.S. EPA

REFERENCES

B&R Environmental, March 1996, Environmental Baseline Survey - Naval Air Warfare Center Indianapolis, Indiana.

B&R Environmental, June 1996. Community Relations Plan - Naval Air Warfare Center Indianapolis, Indiana.

B&R Environmental, August 1996. Finding of Suitability to Lease and Environmental Baseline Survey for Lease - Naval Air Warfare Center Indianapolis, Indiana.

B&R Environmental, October 1996. Remedial Investigation Work Plan - Naval Air Warfare Center Indianapolis, Indiana.

Supporting documents: Field Sampling Plan
Health and Safety Plan
Quality Assurance Project Plan

B&R Environmental, November 1996. DRAFT Data Management Plan - Naval Air Warfare Center Indianapolis, Indiana.

B&R Environmental, November 1997. Phase I Remedial Investigation Report - Revision 1 - Naval Air Warfare Center Indianapolis, Indiana

IDEM (Indiana Department of Environmental Management), October 1995. Voluntary Remediation Program Resource Guide. Office of Environmental Response.

Tetra Tech NUS, Inc., August 7, 1998, Technical Memorandum of Phase II Remedial Investigation Analyses.

Tetra Tech NUS, Inc., September 1998, Proposed Plan for AOC 8 - Former Vehicle Maintenance Facility, Building 4000 - Naval Air Warfare Center Indianapolis, Indiana.

Tetra Tech NUS, Inc., November 1998, Phase I and II Remedial Investigation Report - Revision 2 - Naval Air Warfare Center Indianapolis, Indiana.

U.S. EPA (United States Environmental Protection Agency), 1989. Guidance on Preparing Superfund Decision Documents - Interim Final. EPA/540/G-89/007. Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA (United States Environmental Protection Agency), 1990. National Contingency Plan. Federal Register Vol. 55 No. 46 pp. 8666-8865.

U.S. Geological Survey, 1997, Hydrogeology and Ground-Water Flow in the Vicinity of the Naval Air Warfare Center, Indianapolis, Indiana., Risch M. R. and R. F. Duwelius, U.S. Department of the Interior, U.S. Geological Survey, Indianapolis, Indiana, Final Report.

U.S. Geological Survey, 1998, Hydrogeology, Ground-Water Quality, Ground-Water flow a the Naval Air Warfare Center, Indianapolis, Indiana., Risch, M. R., U.S. Department of the Interior, U.S. Geological Survey, Indianapolis, Indiana, Draft Report.

AOC 8

APPENDIX A

REMEDIAL INVESTIGATION REPORT LABORATORY DATA, RISK ASSESSMENT TABLES AND SAMPLE LOCATION FIGURE

TABLE 9-2
SUMMARY OF POSITIVE DETECTIONS IN SURFACE AND SUBSURFACE SOIL
AOC 8 - THE FORMER VEHICLE MAINTENANCE FACILITY, BUILDING 4000
NAVAL AIR WAREFARE CENTER INDIANAPOLIS
MARION COUNTY, INDIANA

SAMPLE NUMBER:	BACKGROUND	A08DP00101	A08DP00102	A08DP00102-D	A08DP00201	A08DP00202	A08DP00301	A08DP00302	A08DP00401	A08DP00402
SAMPLE DATE:		11/14/96	11/14/96	11/14/96	11/14/96	11/14/96	11/14/96	11/14/96	11/13/96	11/14/96
PHASE:		I	I	I	I	I	I	I	I	I
BORING:		AOC08DP01	AOC08DP01	AOC08DP01	AC08DP02	AOC08DP02	AOC08DP03	AOC08DP03	AOC08DP04	AOC08DP04
AOC:		A08	A08	A08	A08	A08	A08	A08	A08	A08
DEPTH:		0 - 2	2 - 6	2 - 6	0 - 2	2 - 6	0 - 2	2 - 6	0 - 2	2 - 6
FIELD DUPLICATE OF:				A08DP00102						
VOLATILES (µg/kg)										
2-BUTANONE		11 U	11 U	12 U	11 U	11 U	12 U	11 U	12 U	16
TOLUENE		11 U	11 U	12 U	11 U	1 J	1 J	11 U	2 J	13 U
TRICHLOROETHENE		11 U	11 U	12 U	11 U	11 U	3 J	11 U	12 U	13 U
SEMIVOLATILES (µg/kg)										
BENZO(A)ANTHRACENE		370 U	360 U	380 U	390 U	56 J	360 U	400 U	390 U	400 U
BENZO(A)PYRENE		370 UJ	360 UJ	380 U	390UJ	55 J	360 U	400 U	390 U	400 U
BENZO(B)FLUORANTHENE		370 U	360 U	380 U	390 U	88 J	360 U	400 U	390 U	400 U
BENZO(G,H,I)PERYLENE		370 U	360 U	380 U	390 U	39 J	360 U	400 U	390 U	400 U
BIS(2-ETHYLHEXYL)PHTHALATE		370 U	360 U	47 J	390 U	42 J	360 U	400 U	390 U	63 J
CHRYSENE		370 U	360 U	380 U	390 U	72 J	360 U	400 U	390 U	400 U
DI-N-BUTYL PHTHALATE		370 U	360 U	380 U	390 U	380 U	360 U	400 U	390 U	400 U
FLUORANTHENE		370 U	360 U	380 U	390 U	150 J	360 U	400 U	390 U	400 U
PHENANTHRENE		370 U	360 U	380 U	390 U	81 J	360 U	400 U	390 U	400 U
PYRENE		370 U	360 U	380 U	390 U	120 J	360 U	400 U	390 U	400 U
METALS (mg/kg)										
LEAD	61.7	6.3 J	4.6 J	10.4 J	10 J	4 J	9.7 J	5.4 J		

Background value for inorganics are the 95% Upper Tolerance Limit (UTL) which is based on the background data set.
*** - Indicates the concentration exceeds background.**
Blank space indicates sample not analyzed for that particular compound.

TABLE 9-2
SUMMARY OF POSITIVE DETECTIONS IN SURFACE AND SUBSURFACE SOIL
AOC 8 - THE FORMER VEHICLE MAINTENANCE FACILITY, BUILDING 4000
NAVAL AIR WAREFARE CENTER INDIANAPOLIS
MARION COUNTY, INDIANA

SAMPLE NUMBER:	BACKGROUND	A08DP00501	A08DP00502	A08DP00502-D	A08DP00601	A08DP00602				
SAMPLE DATE:		11/14/96	11/14/96	11/14/96	11/14/96	11/14/96				
PHASE:		I	I	I	I	I				
BORING:		AOC08DP05	AOC08DP05	AOC08DP05	AOC08DP06	AOC08DP06				
AOC:		A08	A08	A08	A08	A08				
DEPTH:		0 - 2	2 - 6	2 - 6	0 - 2	2 - 6				
FIELD DUPLICATE OF:				A08DP00502						
VOLATILES (µg/kg)										
2-BUTANONE		12 U	11 U	11 U	12 U	11 U				
TOLUENE		12 UJ	11 U	11 U	12 U	11 UJ				
TRICHLOROETHENE		12 U	11 U	11 U	5 J	11 UJ				
SEMIVOLATILES (µg/kg)										
BENZO(A)ANTHRACENE		400 U	370 U	370 U	360 U	370 U				
BENZO(A)PYRENE		400 U	370 U	370 U	360 U	370 U				
BENZO(B)FLUORANTHENE		400 U	370 U	370 U	360 U	370 U				
BENZO(G,H,I)PERYLENE		400 U	370 U	370 U	360 U	370 U				
BIS(2-ETHYLHEXYL)PHTHALATE		400 U	370 U	40 J	37 J	370 U				
CHRYSENE		400 U	370 U	370 U	360 U	370 U				
DI-N-BUTYL PHTHALATE		400 U	370 U	370 U	360 U	38 J				
FLUORANTHENE		400 U	370 U	370 U	360 U	370 U				
PHENANTHRENE		400 U	370 U	370 U	360 U	370 U				
PYRENE		400 U	370 U	370 U	360 U	370 U				
METALS (mg/kg)										
LEAD	61.7		6.6 J	5.4 J	4.1 J	5.3 J				

Background value for inorganics are the 95% Upper Tolerance Limit (UTL) which is based on the background data set.
*** - Indicates the concentration exceeds background.**
Blank space indicates sample not analyzed for that particular compound.

Data validation was conducted in accordance with the EPA National Functional Guidelines for Organic and Inorganic Data Review and EPA Region V guidelines. The following data qualifiers were used during the data review process:

- U - Indicates that the analyte was not detected at the numerical detection limit. Nondetected results reported by the laboratory and positive results qualified due to laboratory or field blank contamination (false positives) are reported using this qualifier.

- BU - Indicates that the analyte was detected in the associated method blank but the result is considered to be a false positive as a result of method blank contamination.

- BJ - Indicates that the analyte was detected in the associated laboratory method blank. The stated result is qualified as estimated since the concentration exceeds the validation blank action level.

- UJ - Indicates that the analyte was not detected. However, the detection limit is estimated as a result of a noncompliance encountered during laboratory analysis. The associated detection limit is regarded as imprecise.

- J - Indicates that the analyte was detected and the associated numerical result is estimated or imprecise.

- UR - Indicates that the laboratory did not detect the analyte. However, the nondetected analyte is considered unreliable and unusable as a result of a gross technical deficiency.

- R - Indicates that the laboratory detected the analyte. However, the positive result is considered unreliable and unusable as a result of a gross technical deficiency.

The above qualifications are generally categorized as major and minor problems or deficiencies. Major problems are defined as those, which result in the rejection of a data. Such results are qualified either as R or UR. Minor problems are defined as those, which result in the estimation of a given data point. The following qualifiers identify data qualified as a consequence of minor problems: BU, BJ, UJ, and J.

TABLE 9-4

SELECTION OF COPCs FOR HUMAN HEALTH RISK ASSESSMENT
DIRECT CONTACT EXPOSURE - RESIDENTIAL LAND USE SCENARIO
AOC 8 - THE FORMER VEHICLE MAINTENANCE FACILITY, BUILDING 4000 - SURFACE SOIL
PHASE I & II REMEDIAL INVESTIGATION
NAVAL AIR WARFARE CENTER INDIANAPOLIS
MARION COUNTY, INDIANA

Chemical	Frequency of Detection (1)	Range of Detection	Exposure Point Concentration	Average Concentrations Positive Hits	Location of Maximum	EPA Region III Risk-Based Concentrations (2) Residential	EPA Region IX Preliminary Risk-Based Goals (3) Residential	Indiana Tier II Cleanup Goals (4) Residential	Soil Screening Level (5) Soil to Air	Upper Tolerance Limit for Background	Selected as a COPC? Residential Yes or No
Volatile Organic Compounds (ug/kg)											
Toluene	2/6	1 - 2	2	1.5	AOC08DP04	1600000	520000 (sat)	1000000	520000	ND	No
Trichloroethene	2/6	3 - 5	5	4	AOC08DP06	58000	2700	58180	3000	ND	No
Semivolatile Organic Compounds (ug/kg)											
Bis(2-Ethylhexyl)phthalate	1/6	37	37	37	AOC08DP06	46000	32000	45710	210000	ND	No
Metals (mg/kg)											
Lead	4/4	4.1 - 10	10	7.53	AOC08DP02	400 (7)	400	—	—	61.7	No

Notes:
1 Data from the following sampling locations were included in the screening process: A08DP00101, A08DP00201, A08DP00301, A08DP00401, A08DP00501, A08DP00601
(2) - U.S. EPA Region III Risk-based Concentration Table, April 12, 1999.
(3) - U.S. EPA Region IX Preliminary Remedial Goals, May 1, 1998.
(4) - IDEM Voluntary Remediation Program Resource Guide, October, 1995.
(5) - U.S. EPA Soil Screening Guidance, May 1996.

TABLE 9-5

SELECTION OF COPCs FOR HUMAN HEALTH RISK ASSESSMENT
DIRECT CONTACT EXPOSURE - RESIDENTIAL LAND USE SCENARIO
AOC 8 - THE FORMER VEHICLE MAINTENANCE FACILITY, BUILDING 4000 - SURFACE SOIL
PHASE I & II REMEDIAL INVESTIGATION
NAVAL AIR WARFARE CENTER INDIANAPOLIS
MARION COUNTY, INDIANA

Chemical	Frequency of Detection (1)	Range of Detection	Exposure Point Concentration	Average Concentrations Positive Hits	Location of Maximum	EPA Region III Risk-Based Concentrations (2) Non Residential	EPA Region IX Preliminary Risk-Based Goals (3) Non Residential	Indiana Tier II Cleanup Goals (4) Non Residential	Soil Screening Level (5) Soil to Air	Upper Tolerance Limit for Background	Selected as a COPC? Residential Yes or No
Volatile Organic Compounds (ug/kg)											
Toluene	2/6	1 - 2	2	1.5	AOC08DP04	41000000	520000 (sat)	1000000	520000	ND	No
Trichloroethene	2/6	3 - 5	5	4	AOC08DP06	520000	6100	24970	3000	ND	No
Semivolatile Organic Compounds (ug/kg)											
Bis(2-Ethylhexyl)phthalate	1/6	37	37	37	AOC08DP06	410000	210000	4142860	210000	ND	No
Metals (mg/kg)											
Lead	4/4	4.1 - 10	10	7.53	AOC08DP02	—	100	—	—	61.7	No

Notes:
1 Data from the following sampling locations were included in the screening process: A08DP00101, A08DP00201, A08DP00301, A08DP00401, A08DP00501, A08DP00601
(2) - U.S. EPA Region III Risk-based Concentration Table, April 12, 1999.
(3) - U.S. EPA Region IX Preliminary Remedial Goals, May 1, 1998.
(4) - IDEM Voluntary Remediation Program Resource Guide, October, 1995.
(5) - U.S. EPA Soil Screening Guidance, May 1996.
(6) - Rationale Codes Above Screening Levels (ASL)

TABLE 9-6

SELECTION OF COPCs FOR HUMAN HEALTH RISK ASSESSMENT
DIRECT CONTACT EXPOSURE - RESIDENTIAL LAND USE SCENARIO
AOC - 8 THE FORMER VEHICLE MAINTENANCE FACILITY, BUILDING 4000 - SUBSURFACE SOIL
PHASE I & II REMEDIAL INVESTIGATION
NAVAL AIR WARFARE CENTER INDIANAPOLIS
MARION COUNTY, INDIANA

Chemical	Frequency of Detection (1)	Range of Detection	Exposure Point Concentration	Average Concentrations Positive Hits	Location of Maximum	EPA Region III Risk-Based Concentrations (2) Residential	EPA Region IX Preliminary Risk-Based Goals (3) Residential	Indiana Tier II Cleanup Goals (4) Residential	Soil Screening Level (5) Soil to Air	Upper Tolerance Limit for Background	Selected as a COPC? Residential Yes or No
Volatile Organic Compounds (ug/kg)											
2-Butanone	1/6	16	11.9	16	AOC08DP04	4700000	690000	1000000	—	ND	No
Tolune	1/6	1	1	1	AOC08DP02	1600000	520000 (sat)	1000000	520000	ND	No
Semivolatile Organic Compounds (ug/kg)											
Benzo(a)anthracene	1/6	56	56	56	AOC08DP02	870	560	696630	27000	ND	No
Benzo(a)pyrene	1/6	55	55	55	AOC08DP02	87	56	69850	11000	ND	No
Benzo(b)fluoranthene	1/6	88	88	88	AOC08DP02	870	560	698630	23000	ND	No
Benzo(g,h,i)perylene	1/6	39	39	39	AOC08DP02	310000 (7)	5500 (7)	—	—	ND	No
Bis(2-Ethylhexyl)phthalate	4/6	40 - 63	63	48	AOC08DP04	46000	32000	5840000	210000	ND	No
Chrysene	1/6	72	72	72	AOC08DP02	87000	56000	10000000	3600	ND	No
Di-n-butyl phthalate	1/6	38	38	38	AOC08DP06	780000	550000	10000000	100000	ND	No
Fluoranthene	1/6	150	150	150	AOC08DP02	310000	200000	10000000	68000	ND	No
Phenanthrene	1/6	81	81	81	AOC08DP02	310000 (7)	5500 (7)	—	—	ND	No
Pyrene	1/6	120	120	120	AOC08DP02	230000	150000	10000000	56000	ND	No
Metals (mg/kg)											
Lead	5/5	4 - 10.4	10	6.34	AOC08DP01	400 (8)	400	—	—	61.7	No

Notes:
(1) Data from the following sampling locations were included in the screening process: A08DP00102-MAX, A08DP00202, A08DP00302, A08DP00402, A08DP00502-MAX, A08DP00602
(2) - U.S. EPA Region III Risk-based Concentration Table, April 12, 1999.
(3) - U.S. EPA Region IX Preliminary Remedial Goals, May 1, 1998.
(4) - IDEM Voluntary Remediation Program Resource Guide, October, 1995.
(5) - U.S. EPA Soil Screening Guidance, May 1996.
(6) - Rationale Codes Above Screening Levels (ASL)
Background Levels (BKG)

TABLE 9-7

SELECTION OF COPCs FOR HUMAN HEALTH RISK ASSESSMENT
DIRECT CONTACT EXPOSURE - NON RESIDENTIAL LAND USE SCENARIO
AOC - 8 THE FORMER VEHICLE MAINTENANCE FACILITY, BUILDING 4000 - SURFACE SOIL
PHASE I & II REMEDIAL INVESTIGATION
NAVAL AIR WARFARE CENTER INDIANAPOLIS
MARION COUNTY, INDIANA

Chemical	Frequency of Detection (1)	Range of Detection	Exposure Point Concentration	Average Concentrations Positive Hits	Location of Maximum	EPA Region III Risk-Based Concentrations (2) Non Residential	EPA Region IX Preliminary Risk-Based Goals (3) Non Residential	Indiana Tier II Cleanup Goals (4) Non Residential	Soil Screening Level (5) Soil to Air	Upper Tolerance Limit for Background	Selected as a COPC? NonResidential Yes or No
Volatile Organic Compounds (ug/kg)											
2-Butanone	1/6	16	11.9	16	AOC08DP04	120000000	2700000	1000000	—	ND	No
Tolune	1/6	1	1	1	AOC08DP02	41000000	520000 (sat)	1000000	520000	ND	No
Semivolatile Organic Compounds (ug/kg)											
Benzo(a)anthracene	1/6	56	56	56	AOC08DP02	7800	3600	698630	27000	ND	No
Benzo(a)pyrene	1/6	55	55	55	AOC08DP02	780	360	69850	11000	ND	No
Benzo(b)fluoranthene	1/6	88	88	88	AOC08DP02	7800	3600	698630	23000	ND	No
Benzo(g,h,i)perylene	1/6	39	39	39	AOC08DP02	8200000 (7)	19000 (7)	—	—	ND	No
Bis(2-Ethylhexyl)phthalate	4/6	40 - 63	63	48	AOC08DP04	410000	210000	5840000	210000	ND	No
Chrysene	1/6	72	72	72	AOC08DP02	780000	360000	10000000	3600	ND	No
Di-N-butyl phthalate	1/6	38	38	38	AOC08DP06	20000000	11000000	10000000	100000	ND	No
Fluoranthene	1/6	150	150	150	AOC08DP02	8200000	3700000	10000000	68000	ND	No
Phenanthrene	1/6	81	81	81	AOC08DP02	8200000	19000 (7)	—	—	ND	No
Pyrene	1/6	120	120	120	AOC08DP02	6100000	26000000	10000000	56000	ND	No
Metals (mg/kg)											
Lead	5/5	4 - 10.4	10	6.34	AOC08DP01	—	1000	—	—	61.7	No

Notes:
1 Data from the following sampling locations were included in the screening process: A08DP00102-MAX, A08DP00202, A08DP00302, A08DP00402, A08DP00502-MAX, A08DP00602
(2) - U.S. EPA Region III Risk-based Concentration Table, April 12, 1999.
(3) - U.S. EPA Region IX Preliminary Remedial Goals, May 1, 1998.
(4) - IDEM Voluntary Remediation Program Resource Guide, October, 1995.
(5) - U.S. EPA Soil Screening Guidance, May 1996.
(6) - Rationale Codes Above Screening Levels (ASL)
Background Levels (BKG)

TABLE 9-8

SELECTION OF CHEMICALS OF POTENTIAL CONCERN (COPCs) FOR HUMAN HEALTH RISK ASSESSMENT
GROUNDWATER PROTECTION EVALUATION
AOC 8 - THE FORMER VEHICLE MAINTENANCE FACILITY - SURFACE AND SUBSURFACE SOIL
PHASE I & II REMEDIAL INVESTIGATION
NAVAL AIR WARFARE CENTER INDIANAPOLIS
MARION COUNTY, INDIANA

Chemical	Maximum Concentration (1)		Indiana Tier II Cleanup Goals (2)		EPA Region IX Soil Screening Level (3)	Upper Tolerance Limit for Background	Selected as a COPC?	
	Surface Soil	Subsurface Soil	Non Residential	Residential	Soil to Groundwater		Industrial Yes or No	Residential Yes or No
Volatile Organic Compounds (ug/kg)								
2-butanone	ND	16	146240	11620	---	ND	No	No
Toluene	2	1	1000000	202100	12000	ND	No	No
Trichloroethene	5	ND	25730	76	60	ND	No	No
Semivolatile Organic Compounds (ug/kg)								
Benzo(a)anthracene	ND	56	103880	103881	2000	ND	No	No
Benzo(a)pyrene	ND	55	212570	212868	8090	ND	No	No
Benzo(b)fluoranthene	ND	68	354980	354977	5080	ND	No	No
Benzo(g,h,i)perylene	ND	39	---	---	---	ND	NC	NC
Bis(2-ethylhexyl)phthalate	37	63	1406250	15427	3500000	ND	No	No
Chrysene	ND	72	10000000	378273	160000	ND	No	No
Di-n-butyl Phthalate	ND	36	6188580	1054967	2300000	ND	No	No
Fluoranthene	ND	150	10000000	2308040	4300000	ND	No	No
Indenodiyrene	ND	61	---	---	---	ND	NC	NC
Pyrene	ND	120	10000000	10000000	4200000	ND	No	No
Metals (mg/kg)								
Lead	10	10.4	---	---	---	61.7	NC	NC

Notes:
(1) - Data from the following sampling locations were included in the screening process: A08DP00102-MAX, A08DP00202, A08DP00302, A08DP00402, A08DP00502-MAX, A08DP00602
(2) - IDEM Voluntary Remediation Program Resource Guide, October, 1995.
(3) - U.S. EPA Region IX Preliminary Remedial Goals, May 1, 1998.
Shaded bolded values indicate an exceedance of criteria.
ND - Not Detected
COPC - Chemicals of Potential Concern.
NC - No criteria avaliable.

TABLE 9-9

TERRESTRIAL FLORA AND FAUNA COPC SELECTION TABLES- AOC 8
PHASE II REMEDIAL INVESTIGATION
NAVAL AIR WARFARE CENTER, INDIANAPOLIS
MARION COUNTY, INDIANA

Chemical	Frequency of Detection	Range of Detections			Location of Maximum	Ecological Screening Level (1)	Number Exceeding Screening Level	Background Concentration	Number Exceeding Background Concentration	Selected as a COPC?	Rational
		Min.	Max.	Avg. All							
Volatile Organics (ug/kg)											
TOLUENE	2/6	1.0	2.0	2.0	AOC08DP04	1400	0	ND	NA	N	Below screening value
TRICHLOROETHENE	2/6	3.0	5.0	5.0	AOC08DP06	3000	0	ND	NA	N	Below screening value
Semivolatile Organics (ug/kg)											
BIS(2-ETHYLHEXYL)PHTHALATE	1/6	37.0	37.0	37.0	AOC08DP06	6010	0	ND	NA	N	Below screening value
Inorganics (mg/kg)											
LEAD	4/4	4.1	10.0	7.5	AOC08DP02	70	0	61.7	0	N	Below screening value

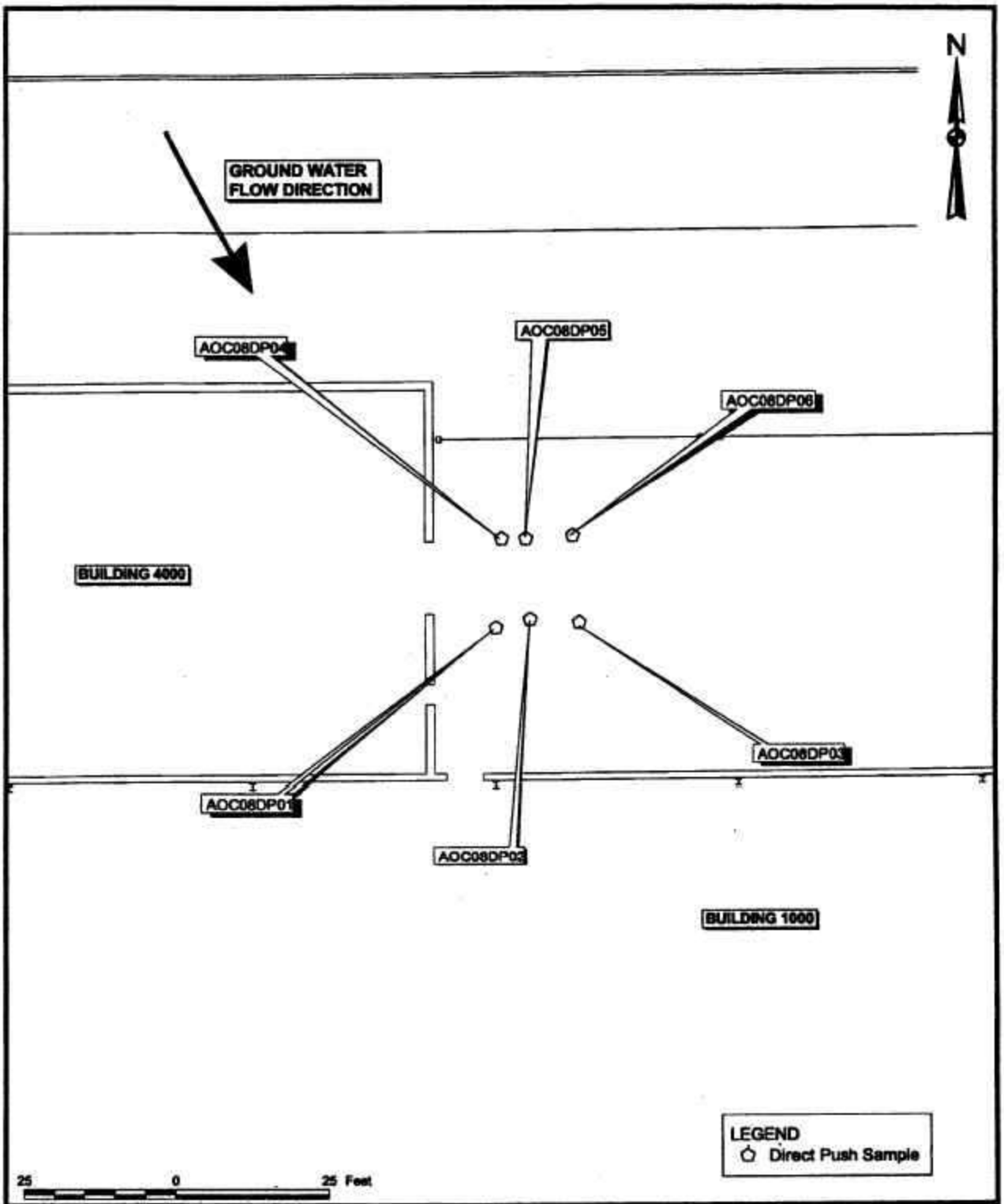
NA - Not Applicable
ND - Not Detected
NV - No Value Established
(1) References for screening levels are presented on Table 2-17

TABLE 9-10

SUMMARY OF TERRESTRIAL WILDLIFE MODEL HAZARD QUOTIENTS - AOC 8
CONSERVATIVE AND AVERAGE INPUTS
PHASE I AND II REMEDIAL INVESTIGATION
NAVAL AIR WARFARE CENTER, INDIANAPOLIS
MARION COUNTY, INDIANA

	Conservative Inputs				Average Inputs			
	Meadow Vole		American Robin		Vole		Robin	
COPCs	NOAEL HQ_n	LOAEL HQ_l	NOAEL HQ_n	LOAEL HQ_l	NOAEL HQ_n	LOAEL HQ_l	NOAEL HQ_n	LOAEL HQ_l
Volatile Organics								
TOLUENE	8.50E-05	8.50E-06	--	--	5.85E-06	5.85E-07	--	--
TRICHLOROETHENE	7.69E-03	7.69E-04	--	--	7.75E-04	7.75E-05	--	--
Semivolatile Organics								
BIS(2-ETHYLHEXYL)PHTHALATE	2.23E-03	2.23E-04	7.36E-02	7.36E-03	2.30E-05	2.30E-06	5.22E-02	5.22E-03

-- No toxicity data was available for this contaminant so an HQ could not be calculated
Shaded cells are contaminants with HQs greater than 1
HQn - Hazard Quotient for the NOAEL
HQI - Hazard Quotient for the LOAEL



DRAWN BY: CHAD P. GUCK	DATE: 25-June-99	AOC 8 RI SAMPLING LOCATIONS THE FORMER VEHICLE MAINTENANCE FACILITY, BUILDING 4000 AOC 8 DECISION DOCUMENT NAVAL AIR WARFARE CENTER INDIANAPOLIS MARION COUNTY, INDIANA	CONTRACT NUMBER: 12
CHECKED BY:	DATE:		APPROVED BY: K. HENN DATE: 8/25/99
COST/SCHEDULE-AREA:			APPROVED BY: — DATE: —
SCALE: AS NOTED			DRAWING NO.: FIGURE A-1 REV: 1

P:\GIS\7173\7173_PROPOSED_PLAN.APR 8/25/99 CPG AOC 8 LOCATION LAYOUT